

APPENDIX M

EXISTING AND POTENTIAL REUSE OPTIONS

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Existing and Potential Beneficial Reuse and Disposal Options ¹ (Provided for planning purposes. Figures contained herein are preliminary estimates.)					
Disposal Site	Site Status / Feasibility²	Implementation Costs (million dollars)	Disposal Cost³ (dollars per cubic yard)	Site Capacity	Other Issues
Wetland Restoration					
Montezuma (Solano County)	Potential	To be borne by project applicant.	6 to 10 ⁴	17.0 mcy for habitat creation, with 3.0 mcy for confined disposal, ⁵ 0.4 mcy/drying cycle ⁶ for rehandling facility	<ul style="list-style-type: none"> Privately sponsored proposal to create an 1800-acre restoration site involving; (1) Four-phase construction proposed by building individual cells (ranging in size from 240 to 600 acres); (2) Restoration using cover and non-cover dredged material; (3) Hydrologically independent phases with a single connection to Montezuma Slough or Sacramento River; and (4) Phased design which allows for monitoring and mitigation based on results from earlier phases. Final EIR/EIS for project issued in 1999. Permits to be pursued pending resolution of legal challenge re: adequacy of the Final EIS/EIR.

¹ Table does not include beneficial reuse and disposal site which are no longer accepting dredged material due to capacity (e.g., Sonoma Baylands, Galbraith Golf Course).

² Feasibility, if listed, is from LTMS technical studies.

³ Disposal cost estimates based on Central Bay dredging projects (unless otherwise noted), and do not include implementation costs.

⁴ Includes all disposal-related costs except for dredging and transport.

⁵ Confined disposal assumes multiple disposal events and an average 40-60% compaction of dry material.

⁶ In the Bay and Delta regions, rehandling or drying cycle typically lasts from 18 to 24 months.

<p style="text-align: center;">Existing and Potential Beneficial Reuse and Disposal Options ¹ (Provided for planning purposes. Figures contained herein are preliminary estimates.)</p>					
Disposal Site	Site Status / Feasibility²	Implementation Costs (million dollars)	Disposal Cost³ (dollars per cubic yard)	Site Capacity	Other Issues
Hamilton Army Airfield, State Lands Commission Antenna Field, Bel Marin Keys Unit V ⁷ (Marin County)	Potential	18.4	7.4-11.3	10.2 mcy	<ul style="list-style-type: none"> Currently in base closure, scheduled for completion in 2000. Conceptual restoration plan and USACE feasibility study completed in April, 1998. CEQA/NEPA process completed in 1998. Final design plans scheduled for completion in 2001. Studies determined 950-acre site (not including Bel Marin Keys Unit V) would best be restored by using dredged material or relying on natural processes. Dredged material could also be used to help finalize site remediation and thus base closure. Potentially available to use material for habitat restoration in 2002. ⁸ Implementation depends on: (1) completion of site remediation and base closure; (2) finalization of transfer of Airfield to the State; (3) endangered species concerns regarding temporary impacts; and (4) congressional appropriation of funding needed to implement project (through WRDA).

7 Restoration project recently expanded to include adjacent Bel Marin Keys (BMK) Unit V. LTMS estimated 20 mcy of dredged material could be used to restore habitat at BMK, but restoration method uncertain at this time

8 Site construction estimated to take 6 years: 2 years for site preparation; 1 year to place 2.1 mcy of dredged material for seasonal wetland restoration; 3 years to place 8.5 mcy of material for tidal wetland restoration; and 1 year to consolidate material. Site construction and consolidation of dredged material to be followed by breaching of bayward levee. Site monitoring and adaptive management to occur over 13-year period. Complete restoration of site estimated to take 30 years. Presently, 3 to 4 mcy of material from the Port of Oakland's 50-foot deepening project is under consideration to construct the tidal and seasonal wetlands at the Hamilton site (USACE 1998).

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Skaggs Island (Sonoma County)	Potential	39.9 for habitat creation ⁵	5.2 ¹²	16.0 mcy for habitat creation or 72.0 mcy for confined disposal ⁵	<ul style="list-style-type: none"> LTMS identified as highly feasible for habitat creation and prepared conceptual plan in 1993.
Rehandling Facilities and End Uses					
Cargill Salt crystallizer ponds (east of Napa River) (Napa County)	Potential	3.4 (rehandling) ⁹ 14-65 (confined disposal) ¹⁰	7-16 (re-handling) ¹¹ 5 (confined disposal) ¹²	Up to 1.9 mcy/drying cycle ⁶ 5.5 mcy for confined disposal ⁵	<ul style="list-style-type: none"> The site (1) Consists of 18 salt ponds with levees, pumps and pipelines; (2) Covers approximately 1400 acres; (3) Is privately owned and will likely require mitigation and funding to implement; and (4) Has deep water access and capacity to stockpile large quantities of material, and proximity to highway system. Currently being studied by DMRP. Implementation likely to require mitigation and funding.

⁹ Includes costs for site acquisition, engineering, utility relocation, construction, and administration; mitigation and monitoring are not included.

¹⁰ \$65 million cost to establish operations comparable to hazardous waste facility.

¹¹ Includes costs for mobilization, dredging (\$16/cy based on small dredging projects, about 50,000 cy), transport, and placement at reuse site.

¹² Includes costs for transport, pump-out, and placement at reuse site; dredging costs not included. Add \$2.20/cy for small projects

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Mare Island (Solano County)	Potential	0.4	7	12.0 mcy for confined disposal ⁵	<ul style="list-style-type: none"> • The Navy clean-up of the ponds was completed in 1999. • The ponds are no longer used by the Navy • LTMS prepared conceptual plans (12/95) after the site was identified as highly feasible for rehandling and/or confined disposal... • Three of 10 ponds are likely to be used as part of USFWS refuge. • The City of Vallejo finalized the feasibility study re: multi-user facility in March, '98, and found use of ponds for unsuitable material "viable." • There is an existing pipeline to transfer material from scows which may require repairs. • New permits are needed to operate facility. • The site is currently being studied through DMRP.

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Napa River Site (Napa County)	Existing	Not applicable	Not applicable	0.2 mcy ¹³	<ul style="list-style-type: none"> Currently used for material from Napa River federal channel. The dry material is used on-site for perimeter levees
Petaluma Drying Ponds (Sonoma County)	Existing	Not available	Not available	0.5 mcy/drying cycle ⁶	<ul style="list-style-type: none"> Currently used for material from Petaluma River federal maintenance channel only. Dry material has been taken to landfills in the region..
Pierce Island (Solano County)	Existing	Not applicable	Not applicable	0.6 mcy	<ul style="list-style-type: none"> Currently used for material from Suisun Slough federal channel only. Dry material is likely used at landfills or duck club levees.
Port of Oakland Berth 10 Rehandling Facility (Alameda County)	Existing	Not available	60 ¹⁴	0.015 mcy/2-week drying cycle	<ul style="list-style-type: none"> Currently used by Port for NUAD material. Dry material has been taken to Tri Cities Landfill. Although the Site is not currently operating as a regional rehandling facility, it may be available to others upon obtaining the necessary SFBRWQCB discharge permits.

¹³ 1996 data

¹⁴ Cost to Port for all disposal-related costs, including dredging and transport to end-user.

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Port of Richmond Former Shipyard No. 3 (Contra Costa County)	Existing	Not available	Not available	Not available	<ul style="list-style-type: none"> Dredged material from Port of Richmond's deepening project used to remediate site. Site is also used to dry CALTRANS material from the bridge retrofit project. Not currently operating as a regional rehandling facility.
Port of San Francisco Pier 94 (San Francisco County)	Existing	Not available	Not available	Not available	<ul style="list-style-type: none"> Currently used for small volumes (2,000 cy) of material from port. LTMS identified site as highly feasible for rehandling. Port of S.F. is considering expansion of site pending economic feasibility and community acceptability.
Port Sonoma Marina Drying Ponds (Sonoma County)	Existing	0	12	0.06 mcy per drying cycle ⁶ 0.3 mcy (total pond capacity)	<ul style="list-style-type: none"> Currently, the ponds are used exclusively by the marina, but material from other sources has been taken in past. Regional use of ponds is currently limited due to limited capacity and other issues. Currently being studied through DMRP.

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San Leandro (Alameda County)	Existing	2.4	15	1.6 mcy/drying cycle ⁶	<ul style="list-style-type: none"> • Currently used exclusively for San Leandro Harbor federal channel. • Ponds are managed for habitat when not used for rehandling. • Dry material is transported to the Tri-Cities Landfill.

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Redwood Landfill (Marin County)	Existing	Not available	Not available	6-10 mcy of material (over 40- year period)	<ul style="list-style-type: none"> • Active Class III landfill. • Needs daily cover and capping material as part of site closure and requires an off-loading area. • Previously received dredged material from Bay projects. • 80-acre stockpile area available (during dry season). • The landfill will not pay for the material or delivery. • Sand is not accepted. • Currently, dredged material is transported to the landfill from rehandling sites by trucks. However, the site access by trucks is limited due to traffic safety concerns. • Construction of a barge off-loading facility off of the Petaluma River may be possible but the potential impact on the Petaluma Marsh is a key consideration. • DMRP is currently investigating the site.

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Montezuma Rehandling Facility (Solano County)	Potential	To be borne by project applicant.	Not available	Not available	<ul style="list-style-type: none"> Privately sponsored proposal to construct facility on 165-acre portion of site.
Wickland-Selby (Contra Costa County)	Potential	To be borne by project applicant.	Not available	Not available	<ul style="list-style-type: none"> The site is capped hazardous material with deep water access as well as highway and rail access. There are no wetlands or endangered species habitats currently under investigation through DMRP as a potential facility.
Tri Cities Landfill (Alameda County)	Existing	Not available	Not available	1.0 mcy	<ul style="list-style-type: none"> Active class III landfill with capacity to stockpile dried dredged material. Dredged material could be used for daily cover, construction of additional cells, and soil addition. Currently, the material is transported to the site by trucks, but rail access exists within 1.0 mi. (without spur). To date, the landfill has accepted material from rehandling facilities at Port of Oakland's Berth 10 and San Leandro marina. Landfill will not pay for the material or delivery.

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Levee Restoration					
Winter Island (Contra Costa)	Existing	1.7	15	0.1 mcy/year	<ul style="list-style-type: none"> Privately owned hunting and recreational club. The USACE federal channel material was used at island in 1998 and could possibly take additional USACE material in 2000.
Sherman Island (Sacramento County)	Potential	Not available	Not available	____ mcy	<ul style="list-style-type: none"> The majority of island is owned by DWR. There is deep water access directly to site. Bay material was taken to the site in 1990 to construct a landside berm. More material is needed to restore levees. Water quality monitoring was conducted by DWR over a 2-year period adjacent to the berm and indicated no soil contamination or adverse impacts on water quality. Planning process is currently underway to take USACE maintenance material (from Suisun Channel and New York Slough) to the island in 2000 or 2001.
Jersey Island (Contra Costa County)				1.56 mcy	<ul style="list-style-type: none"> There is deep water access directly to site, but no rail access. There was a demonstration project undertaken with USACE material in 1994 and monitoring revealed no water quality impacts from saline material.

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In-Bay Beneficial Reuse					
Middle Harbor Enhancement Project (Alameda County)	Potential	24,228,699	3.98 ¹	5.8 mcy	<ul style="list-style-type: none"> The Port of Oakland and USACE propose habitat enhancement of up to 185 acres in Oakland Middle Harbor. Dredged material from –50 ft project is proposed for disposal in the Middle Harbor to provide variety of habitats including shallow water (<20 feet in depth), eelgrass beds and shallow flats, deep channels and basins, sand beach, hard bottom, coastal salt marsh, and the Middle Harbor Shoreline Park.

¹ Calculated for dredging and placement costs.